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वस्त्रादि — जूट उद्योग में उपयोग के लिए  
कार्ड और गिल पिन — विशिष्टि  
( दूसरा पुनरीक्षण )

**Textiles — Card and Gill Pins for Use  
in Jute Industry — Specification**  
( Second Revision )

ICS 59.120.30

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## FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

There are largely two types of pins used in jute industry, namely, card pins and gill pins. Card pins have a shorter taper as compared to gill pins and are mainly used in carding machines for the purpose of teasing and carding of fibres. Gill pins which are mounted on the bars of drawing and roving machines help in attenuation of the sliver and parallelisation of the fibres. The size of the card or gill pin depends upon the type of machine and the part on which the pins are mounted.

This standard was originally published in 1968. This standard was revised in 1990. The standard has been revised to incorporate the following changes:

- a) References to Indian Standards have been updated; and
- b) Packing and marking clause has been modified.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## Indian Standard

TEXTILES — CARD AND GILL PINS FOR USE IN JUTE  
INDUSTRY — SPECIFICATION

( Second Revision )

**1 SCOPE**

This standard specifies the requirements for the characteristics of card and gill pins for use in the Jute Industry.

**2 REFERENCES**

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards.

**3 GENERAL REQUIREMENTS****3.1 Material**

**3.1.1** The card and gill pins shall be made from cold-drawn smooth-finished steel wire having the following chemical composition:

Sl No.	Constituents	Percent
(1)	(2)	(3)
i)	Carbon (C)	0.70 to 0.80
ii)	Manganese (Mn)	0.50 to 0.80
iii)	Silicon (Si)	0.15 to 0.35
iv)	Sulphur (S)	0.04, <i>Max</i>
v)	Phosphorus (P)	0.04, <i>Max</i>

NOTE — Steels conforming to designation 75C6 of IS 1570 (Part 2) is recommended for the manufacture of card and gill pins.

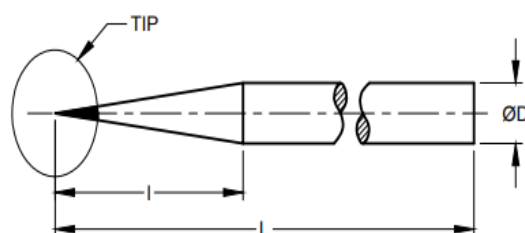
**4 SPECIFIC REQUIREMENTS****4.1 Workmanship and Finish**

**4.1.1** All pins after hardening and tempering should be suitably polished so as to retain the sharpness of the tip and to give a bright smooth finish to the body of the pin. The profile of the tip (*see* Fig. 1 and Fig. 2)

shall be smooth when viewed under a low-power microscope with magnification of 15 to 50.

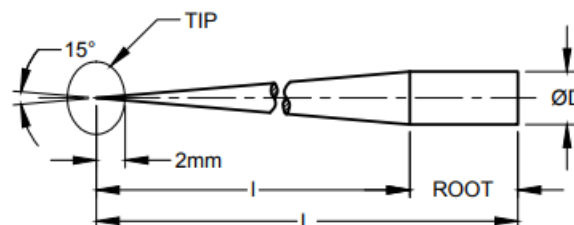
**4.2 Dimensions**

**4.2.1** The dimension of card and gill pins shall be as agreed to between the buyer and the seller.



All dimensions in millimetres.

FIG. 1 CARD PIN



All dimensions in millimetres.

FIG. 2 GILL PIN

However, the following tolerances shall be applicable on diameter and length of card and gill pins:

Diameter      + 0.025 mm  
                     - 0.015 mm

Length            ± 0.35 mm

**4.3 Impact Test**

**4.3.1** The card and gill pins when tested in an impact tester by the method prescribed in **4.3.2** shall conform to the requirements of Table 1.

**Table 1 Impact Values for Card and Gill Pins**  
(Clause 4.3.1)

Sl No.	Diameter (D) of Card or Gill Pins mm	Impact Value Nm/100
(1)	(2)	(3)
i)	1.40 to 1.59	$18 \pm 9$
ii)	1.60 to 1.79	$22 \pm 11$
iii)	1.80 to 1.90	$30 \pm 15$
iv)	1.90 to 2.20	$42 \pm 28$
v)	2.21 to 2.50	$70 \pm 42$
vi)	2.51 to 2.80	$98 \pm 42$
vii)	2.81 to 3.10	$128 \pm 56$
viii)	3.11 to 3.40	$154 \pm 70$
ix)	3.41 to 3.80	$182 \pm 84$

#### 4.3.2 Method of Test

The impact test shall be performed on a suitable tester (a typical tester is illustrated in Fig. 3) with the striking energy of 4 N.m (or 0.4 kgf.m) and with the speed of the hammer at impact of 2 m/s to 3 m/s. The longitudinal axis of the test specimen shall lie in the plane of swing of the centre of gravity of the hammer. The test specimen shall be gripped tightly

in the vice grips so that at least 3 mm of the parallel length of the test specimen projects outside the grips of the vice. The impact value shall be reported in Newton metre.

#### 4.4 Stiffness Test

**4.4.1** In case of card and gill pins having diameter less than 1.40 mm instead of impact test, the stiffness test shall be carried out provided the pin length is at least 25 mm. The breaking angle of card pins in the stiffness test shall be between 15° to 25° and for gill pins the breaking angle shall be between 15° to 30°.

#### 4.4.2 Method of Test

Fix half of the full length of the pin rigidly with a suitable device and then measure the angle when the pin breaks [a typical stiffness (or breaking angle) tester is shown in Fig. 4].

#### 4.5 Breaking Test

**4.5.1** For pins having diameter more than 3.80 mm and also for pins having diameter less than 1.40 mm but length less than 25 mm, instead of impact test breaking test shall be performed by holding the base of the pin up to its central portion with a suitable device and then applying force to the other end by means of a plier. The pin may break after sufficient force is applied but it should not bend.

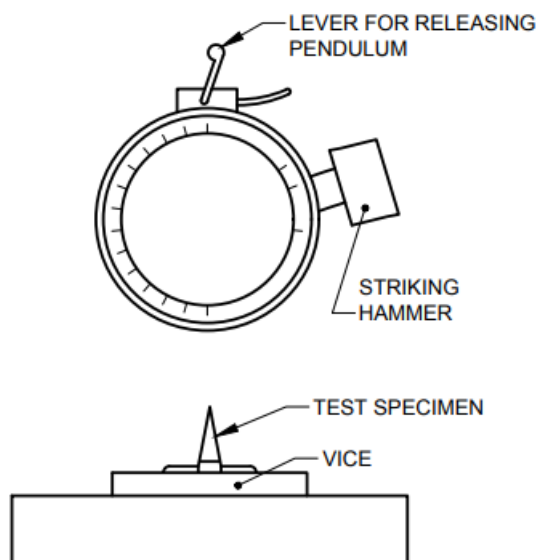


FIG. 3 A TYPICAL IMPACT TESTER

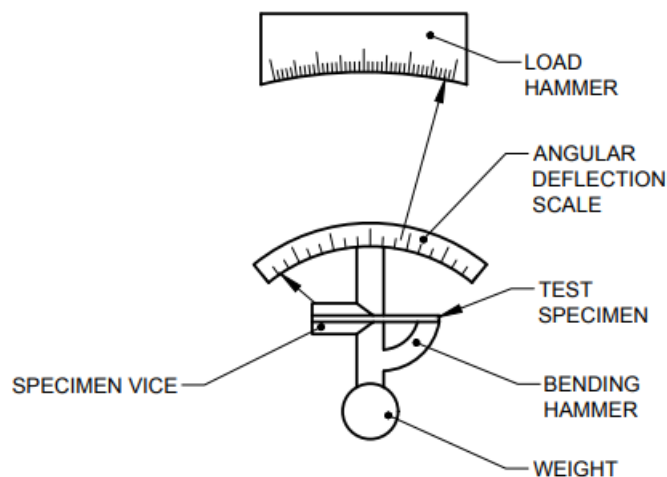


FIG. 4 A TYPICAL BREAKING ANGLE TESTER

#### 4.6 Hardness

**4.6.1** The Vickers hardness for card and gill pins shall satisfy the following requirements:

Card pin	$750 \begin{smallmatrix} + 50 \\ - 75 \end{smallmatrix} \text{ HV}$
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Gill Pin	$650 \pm 60 \text{ HV}$
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**4.6.2** The Vickers hardness test shall be determined by the method prescribed in IS 1501 (Part 1).

NOTE — Hardness requirement has been given for guidance only.

#### 5 DESIGNATION

The designation of pins shall include the type of pin (whether card pin or gill pin), the diameter of pin in mm and the overall length of the pin in mm.

#### 6 SAMPLING

**6.1** The quantity of card or gill pins of the same size delivered to a buyer against a despatch note shall constitute a lot.

**6.2** The conformity of the lot shall be determined on the basis of the tests carried out on the sample selected from it.

**6.3** The number of boxes to be selected at random from a lot shall be in accordance with col (2) and col (3) of Table 2, unless otherwise agreed to between the buyer and the seller.

**6.4** Ten pins shall be selected from each box as selected in **6.3** for inspecting the workmanship, finish and tolerances on dimensions.

**6.5** The number of pins to be selected for impact test or stiffness test or breaking test (*see 4.3, 4.4 and 4.5*) shall be 5 from each selected box subject to a maximum of 20. These may be selected from the set of pins that have already been inspected in **6.4**. As far as possible equal number of pins should be selected at random (*see IS 4905*) out of the selected boxes.

**6.6** The number of pins to be selected for hardness shall be 2 from each selected box subject to a maximum of 16. As far as possible equal number of pins should be selected at random from the selected boxes. These pins may be selected from the pins already inspected in **6.4**.

#### 6.7 Criteria for Conformity

The lot shall be declared as conforming to the requirements of this standard if the following conditions are satisfied:

- If the number of pins found defective for tolerances on dimensions, workmanship and finish does not exceed the corresponding number given in col (4) of Table 2.
- If the average of every consecutive 10 pins tested for impact test satisfies the specified requirement.
- For pins of size where impact test is not applicable, all the pins selected for impact test are subjected to either stiffness test or breaking test depending upon the pin diameter. For stiffness test nine out of ten consecutive pins shall satisfy the specified requirement and for breaking test all the pins shall satisfy the specified requirement.

**Table 2 Sample Size and Criteria for Conformity***(Clauses 6.3 and 6.7)*

Sl No.	No. of Boxes in the Lot	No. of Boxes to be Selected	Permissible Number of Defective Pins for Dimensions, Workmanship and Finish
(1)	(2)	(3)	(4)
i)	up to 15	3	2
ii)	16 to 25	5	3
iii)	26 to 50	8	5
iv)	51 and above	13	7

**7 MARKING**

**7.1** Each box shall be marked with the following information:

- Designation of pins;
- Indication of the source of manufacture;
- Number of pins;
- Lot/batch No.; and
- Date of manufacture.

**7.2 BIS Certification Marking**

The product(s) conforming to the requirements of

this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

**8 PACKING**

The pins shall be treated with suitable rust preventing agent and then packed in cardboard boxes in multiples of 1 000 unless specified otherwise by the buyer.

**ANNEX A***(Clause 2)***LIST OF REFERRED STANDARDS**

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
IS 1501 (Part 1) : 2020/ISO 6507 -1 : 2018	Metallic materials — Vickers hardness test: Part 1 Test method ( <i>fifth revision</i> )		(unalloyed steels) ( <i>first revision</i> )
IS 1570 (Part 2) : 1979	Schedules for wrought steels: Part 2 Carbon steels	IS 4905 : 2015/ ISO 24153 : 2023	Random sampling and randomization procedures ( <i>first revision</i> )

**ANNEX B***(Foreword)***COMMITTEE COMPOSITION**

Textile Machinery and Accessories Sectional Committee, TXD 14

<i>Organization</i>	<i>Representative(s)</i>
Central Manufacturing Technology Institute, Bengaluru	DR NAGAHANUMAIAN ( <b>Chairperson</b> )
Amritlakshmi Machine Works, Mumbai	SHRI N. K. BRAHMACHARI SHRI N. K. RAUT ( <i>Alternate</i> )
ATE Enterprises Private Limited, New Delhi	SHRI ABHIJIT KULKARNI SHRI ANIL KUMAR SHARMA ( <i>Alternate</i> )
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Dashmesh Jacquard and Powerloom Private Limited, Panipat	SHRI RAJMEET DHAMMU ( <i>Representative</i> )
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ICAR-Central Institute for Research on Cotton Technology, Mumbai	DR N. SHANMUGAM DR T. SENTHILKUMAR ( <i>Alternate</i> )
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Indian Jute Mills Association, Kolkata	REPRESENTATIVE
Indian Textile Accessories and Machinery Manufacturers Association, Mumbai	SHRI N. D. MHATRE SHRI CHANDRESH SHAH ( <i>Alternate</i> )
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Laxmi Shuttleless Looms Private Limited, Ahmedabad	SHRI KETAN SANGHVI
Ludlow Jute Limited, Kolkata	REPRESENTATIVE

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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